108 Range Commanders Council Meteorology Group Meeting (RCC-MG)
NASA Marshall Space Flight Center Range Report- April 2017
(RCC-MG Member)

Barry C. Roberts
NASA-MSFC
Natural Environments Branch (EV44)
Terrestrial & Planetary Environments Team
Huntsville, AL 35812

The following is a summary of the major meteorological/atmospheric projects and research that have been or currently are being accomplished at Marshall Space Flight Center (MSFC). Listed below are highlights of work done during the past 6 months in the Engineering Directorate (ED) and in the Science and Technology Office (ST).

NASA MSFC Natural Environments Branch (EV44) Terrestrial and Planetary Environments Team

Space Launch System & Orion Multi-Purpose Crew Vehicle

The purpose of the Space Launch System Program (SLSP) is to develop a heavy lift launch vehicle for future NASA exploration missions. EV44 is responsible for the development and implementation of natural environment specifications for the program. There are two programmatic documents maintained by EV44. The "Cross-Program Design Specification for Natural Environments", SLS-SPEC-159, and the "Cross-Program Vehicle Design Environments Volume 7: Natural", SLS-SPEC-044-07. SLS-SPEC-159 provides natural terrestrial and space environment specifications for NASA Headquarters' Explorations Systems Development programs, which includes the SLSP, Ground Systems Development Office, and the Orion Multi-Purpose Crew Vehicle (MPCV) Program. The SLS-SPEC-044-07 contains applicable natural environments from SLS-SPEC-159 and updated tailored natural environments for the SLS and Orion MPCV Programs.

EV44 has also been supporting the development of the operational phase of the program. Specifically this involved supporting the development of operational maintenance requirements, launch commit criteria, and weather support requirements. EV44 is also leading the development of a wind profile splicing tool, called the Profile Envision and Splicing Tool, to be used in the evaluation of the vehicle ascent trajectory during the launch countdown.

Commercial Crew Program

The purpose of the Commercial Crew Program is to develop commercial systems to provide transportation of crew to and from the International Space Station. EV44 has supported the program by providing insight into natural environment models and analyses used by the two commercial providers.

Natural Environments Day-of-Launch Working Group (NEDOLWG)

The Natural Environments Branch's Terrestrial and Planetary Environments Team chaired the NEDOLWG March 29-30, 2017 at Kennedy Space Center. The purpose of the meeting is to bring together government and commercial launch programs, logistic and crewed vehicle providers, weather support providers, and the natural environments, Guidance, Navigation and Control (GN&C) and Loads communities to exchange information in an effort to improve safety, reliability, and provide cost savings to all programs. Focus areas for the NEDOLWG include natural environment design specifications used for GN&C, trajectory design and ascent loads, changes to range weather infrastructure, and weather support and atmospheric data used on day-of-launch by all the vehicles.

NASA MSFC Earth Science Office (ST11):

Activities at the MSFC Earth Science Office can be found at their web site located at http://weather.msfc.nasa.gov/ .